

REMARKS

Claim 60 is amended. Claims 60-64, 66-68 and 70 are pending in the application.

Claims 60-64, 66-68 and 70 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sukharev, U.S. Patent No. 5,710,079 as combined with Tsukune, U.S. Patent No. 5,314,724 and Wolf, "Silicon Processing for the VLSI Era, Vol. 1-Process Technology", pp. 166-167 (1986). In accordance with MPEP § 2143, a proper obviousness rejection has the following three requirements: 1) there must be some suggestion or motivation to modify or combine reference teachings; 2) there must be a reasonable expectation of success; and 3) the combined references must teach or suggest all of the claim limitations. Claims 60-64, 66-68 and 70 are allowable over the cited combination of Sukharev, Tsukune and Wolf for at least the reason that the references, individually or as combined, fail to disclose or suggest each and every limitation in any of those claims.

As amended, independent claim 60 recites feeding a gaseous silicon precursor, feeding gaseous H_2O_2 and without feeding added ozone into the deposition reactor, utilizing the silicon precursor to directly deposit SiO_2 at a rate of about 7000 Å per minute to form an as deposited layer of SiO_2 , the SiO_2 being formed during the directly depositing. The amendment to claim 60 is supported by the specification at, for example, page 11, lines 9-20 and page 9, lines 4 through page 10, line 2.

Sukharev discloses a method of forming SiO_2 over a surface comprising flowing TEOS, ozone and optionally H_2O_2 . As acknowledged by the Examiner at page 3 of the present action, Sukharev does not disclose or suggest the recited SiO_2 deposition at a rate of about 7000 Å per minute. Further, Sukharev does not disclose or suggest the claim 60 recited directly depositing SiO_2 over a surface utilizing a silicon precursor and H_2O_2 without

feeding added ozone to the reactor.

Tsukune distinctly discloses formation of a SiO₂ film by converting an organic-group containing compound which has been deposited on a substrate (abstract; col. 1, ll. 51-65; col. 6, ll. 33-47 and col. 9, ll. 22 through col. 10, ll. 32). Tsukune further indicates that the disclosed invention avoids direct deposition of SiO₂ to prevent cracking and to allow planarization (col. 4, ll. 42-52; col. 5, ll. 33-52 and col. 9, ll. 5-21). Tsukune distinctly expresses that the disclosed invention is aimed at overcoming problems encountered by direct deposition of SiO₂ films. Accordingly, Tsukune specifically teaches away from the claim 60 recited direct deposition of SiO₂ over a surface to form a layer of SiO₂. Because Tsukune teaches away from the recited direct depositing of SiO₂ over a surface, Tsukune cannot be properly combined as a basis of a § 103 rejection of the claim 60 recited method of direct deposition of SiO₂.

Referring to page 5 of the present Action, the Examiner indicates that because Tsukune teaches a silicon oxide layer, the "layer deposited is silicon oxide". However, Tsukune distinctly indicates that the initially deposited layer comprises organic group containing compounds and must be converted to form the silicon oxide film (see above). Accordingly, Tsukune cannot suggest the claim 60 recited direct depositing of silicon oxide. The Examiner further indicates at page 5 of the action that the Applicant has argued that there is no suggestion to combine Sukharev and Tsukune references. Applicant clarifies that the arguments set forth in the previous Response clearly stated that the Tsukune reference could not be properly combined with Sukharev due to Tsukune specifically teaching away from direct deposition of SiO₂.

As indicated at pp. 2-3 of the present Action, Wolf is relied upon as distinguishing cold-wall and hot-wall reactors. As combined with Sukharev, the reactor types disclosed by Wolf does not contribute toward suggesting the claim 60 recited utilizing a silicon precursor without feeding added ozone to a chemical vapor deposition reactor to directly deposit SiO_2 over a surface of a substrate at a rate of about 7000 Å per minute to form an as deposited layer of SiO_2 , the SiO_2 being formed during the directly depositing. Accordingly, independent claim 60 is not rendered obvious by the cited combination of Sukharev, Tsukune and Wolf and is allowable over these references.

Dependent claims 61-64, 66-68 and 70 are allowable over the cited combination of Sukharev, Tsukune and Wolf for at least the reason that they depend from allowable base claim 60.

For the reasons discussed above, claims 60-64, 66-68 and 70 are allowable. Accordingly, applicant respectfully requests formal allowance of pending claims 60-64, 66-68 and 70 in the Examiner's next action.

Respectfully submitted,

Dated: February 13, 2004

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Reg. No. 48,711